

*Aclp*, anteclypeus (clypeolus); *Apab*, abductor apodeme of mandible; *Apad*, adductor apodeme of mandible; *AT*, anterior tentorial arm; *at*, anterior tentorial pit; *c*, anterior articulation of mandible; *d*, free lobe (lingua) of hypopharynx; *dlob*, attachment of dilator muscles of sucking pump on postclypeus; *DT*, dorsal tentorial arm; *e*, median groove of hypopharynx; *f*, floor of sucking pump, or of food receptacle (sitophore), on base of hypopharynx; *fm*, food meatus; *g*, line of attachment of lorum with postclypeus; *h*, posterior plates of hypopharynx in walls of bristle pouches; *hf*, musculus hypopharyngis frontalis; *Hphy*, hypopharynx; *i*, epipharyngeal plunger of sucking pump; *j*, epipharyngeal depression receiving terminal lobe (*d*) of hypopharynx; *k*, articulation of protractor arm of mandible with lorum; *Lor*, lorum; *Lm*, labrum; *lvr*, lever of protractor arm of mandible; *Md*, mandible; *mdh*, musculus mandibuli hypopharyngealis; *mdpr*, musculus mandibuli protractor; *mdr*, musculi mandibuli retractores (*Imdr* arising on vertex, *2mdr* arising on gena); *Mth*, mouth; *MxPl*, maxillary plate; *pa*, protractor arm of mandible; *Pclp*, postclypeus; *Pmp*, chamber of sucking pump (preoral cibarial cavity, *Cb*); *PT*, posterior tentorial arm; *pt*, posterior tentorial pit; *ra*, retractor arm of mandible; *sls*, sublingual sclerite; *Stom*, stomodaeum; *sus*, suspensorial sclerite of hypopharynx; *x*, mandibular arm of suspensorial sclerite; *y*, oral arm of suspensorial sclerite.

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## SOME PSAMMOCHARIDAE FROM SINGAPORE.

By NATHAN BANKS.

During a visit of some months to Singapore, the late C. F. Baker collected a number of Psammocharidae there and on the island of Penang. These were sent to me by the National Museum in shipping the Baker Philippine Psammocharidae for my study. I have therefore made a report on these Singapore species. The collection is particularly interesting because of the number of Pseudagenini. Frederick Smith described a few species from Singapore, and Cameron and one or two others have added a few; but much of the fauna is still unknown. Many of the species are the same as occur in the lowland areas of Borneo, Celebes, and the Philippines, and doubtless other parts of the Insulinde. Of a number of old species I have added some descriptive matter, omitted from the originals. The classification is explained in my paper on the Philippine forms.

The holotypes and uniques of the material herein discussed are in the U. S. National Museum and some paratypes are in the Museum of Comparative Zoology at Cambridge, Mass.

CRYPTOCHEILINAE.

**Hemipepsis fulvipennis** Fab.

Fairly common at Singapore, and generally over the Malay region.

**Hemipepsis ceylonicus** Sauss.

One from Singapore.

**Cyphononyx fugidipennis** Sm.

From the Island of Penang.

**Cyphononyx cameroni**, sp. nov.

Face almost wholly black, a pale orbital line each side opposite antennae; antennae, body, and legs black, tarsi brown, mid and hind tarsi partly yellowish, the extreme base of the front tibiae yellowish; wings black, violaceous, the front wings have a large yellowish area in middle, somewhat interrupted at base of the second discoidal cell, hind wings with a pale spot over the base of cubital fork. Clypeus nearly truncate, with only short hair, above antennae the hair is longer, a line from anterior ocellus to antennae; ocelli subequal, the posteriors are much nearer to each other than to the eyes; antennae not at all crenulate, the third joint plainly longer than the fourth, but not equal to vertex width; pronotum hairy, arcuate behind; propodeum evenly arched, strongly, transversely carinate, with dense long hair; scutellum and postscutellum high and crested; abdomen rather small, hairy on base, toward tip, and somewhat on venter. Legs slender; femora with some fine hairs; hind tibia with two rows of very short spines above, and about as long ones below; long spur of the hind tibia about two-fifths of the basitarsus. Wings rather large; stigma very short, marginal cell long and slender, pointed at tip, third submarginal hardly twice as long below as broad, much narrowed above, longer than the second submarginal; first recurrent ends almost at tip of the second submarginal cell; second recurrent, bent outward, ends near basal third of third submarginal cell. Length 17 mm. Forewing, 18 mm.

From Singapore. It does not agree with any in Bingham's India, but is undoubtedly related to *Salix venatorius*.

**Monodontonyx plutonis**, sp. nov.

Black; front legs and mid and hind tarsi more reddish brown; wings of a brownish yellow color, a little darker on base, but without a dark band at tip. Head, pronotum, scutelli, propodeum, pleura with long black hair, coxae also with rather long hair, long hair on venter and near tip of abdomen, first segment above only hairy near base. Clypeus truncate below; ocelli subequal, posteriors about twice as near each other as to eyes; antennae slender and long, third joint much longer than fourth, second plus third plainly longer than vertex width; pronotum deeply arcuate behind; scutelli rounded, not high; propodeum transversely carinate, nearly smooth near tip; abdomen rather narrow at base, not

very convex, last segment above with ferruginous appressed hair. Legs long and slender, tibiae and tarsi quite heavily spined, hind tibia above with an inner row of large teeth with spines, and an outer row of fewer spines, long spur of hind tibia fully one-third of basitarsus. Wings moderately slender, stigma very small, marginal cell long and pointed; third submarginal more than twice as long as broad, narrowed one-third above, much longer than the second submarginal, and this more than twice as long as broad; first recurrent ends near tip of the second submarginal, second recurrent nearly evenly bowed outward, ending at basal third of third submarginal cell; in hind wings anal ends at cubital fork. Length 18 mm. Forewing, 18 mm.

From Singapore, Malacca.

**Monodontonyx sericosoma** Sm.

From Singapore, as also in other parts of the Malay region and in India.

**Monodontonyx javanus** Lep. •

Several from Singapore, also in Java, India, and the Philippines.

MACROMERINAE.

- |  |                     |
|--|---------------------|
| 1. Femora with fine hair below; base of second submarginal cell very oblique, reaching considerably forward.....             | <i>Macromerini</i>  |
| Femora without the fine hair; base of second submarginal not nearly as oblique.....  | 2                   |
| 2. Hind tibia with a row of distinct teeth above.....  | <i>Priocnemini</i>  |
| No such teeth on hind tibia, only very small spines if any.....  | 3                   |
| 3. Pronotum elongate and flattened; head flattened and antennae set low as in <i>Platyderes</i> ; front femora enlarged..... | <i>Apinaspini</i>   |
| Pronotum short; head not flattened and antennae set higher.....  | <i>Pseudagenini</i> |

MACROMERINI.

**Macromeris violacea** Lep.

A few from the Island of Penang; common in all the Malay region and Insulinde.

**Paragenia argentifrons** Sm.

Several from Singapore. Clypeus very convex and hairy, faintly rounded, but almost truncate below, in middle of margin with a minute sharp point; face a little narrowed above; anterior ocellus a little the larger, hardly its diameter from the posteriors, latter closer to each other than to the eyes; third joint of antennae much longer than the fourth, and of itself longer than the vertex width; pronotum angulate behind; propodeum closely transversely striate, extending down on the sides to the suture; sides of the metanotum also striate; mid and hind

tibiae with short spines all around; femora with fine short white hairs below; long spur of hind tibia only about one-third of basitarsus. In forewings the second submarginal cell is over four times as long as broad, the base extremely oblique, receiving the first recurrent beyond the middle third; third submarginal a little longer below than the second, narrowed about one-third above, receiving the second recurrent beyond the basal third; in hind wings the anal vein ends before the cubital fork.

PSEUDAGENINI.

Synopsis of the genera:

- |   |                    |   |
|---|--------------------|---|
| 1. Joints of maxillary palpi not elongate, and somewhat enlarged at tips; basal segment of abdomen fully equal to the second (second not enlarged)..... | <i>Dinagenia</i>   | 2 |
| Joints of maxillary palpi elongate, not enlarged at tips.....   |                    |   |
| 2. Clypeus with a distinct median process on lower edge; base of clypeus very oblique each side.....  | <i>Conagenia</i>   | 3 |
| No such process, at most clypeus with a point in middle below.....  |                    |   |
| 3. Pronotum above nearly or quite as long as the mesonotum, both granulate as is also rest of thorax.....   | <i>Meragenia</i>   | 4 |
| Pronotum shorter than mesonotum.....  |                    |   |
| 4. Mesonotum behind longitudinally striate; marginal cell triangular.....   | <i>Lophagenia</i>  | 5 |
| Mesonotum not striate.....  |                    |   |
| 5. Median vein reaches the wing margin.....   | <i>Minagenia</i>   | 6 |
| Median vein at least a little short of the margin.....  |                    |   |
| 6. Last tarsal joint with a few spines below.....   | <i>Phanagenia</i>  |   |
| Last tarsal joint smooth beneath.....   |                    |   |
|   | <i>Pseudagenia</i> |   |

*Minagenia*, sp.

A number of male specimens from Singapore appear to belong here; the clypeus and under side of the basal joint of the antennae yellowish; the legs (except tips of hind pairs) largely yellowish; the third segment of abdomen has a basal yellowish band which on the sides reaches forward. There is no female in the collection to which it can belong, and I know of no species of this genus from India.

*Dinagenia satyrus*, sp. nov.

Black; face, pronotum, mesonotum, and scutellum with golden pubescence, fainter near tip of abdomen; last segment of abdomen yellowish; propodeum with golden sheen in certain lights; legs (except coxae) yellowish; antennae yellowish, last six joints black; wings yellowish, tips of forewings only very faintly darker, veins and stigma yellowish. Clypeus truncate below; labrum entire; face but little narrowed above; anterior ocellus a little larger than the posteriors and not its diameter from them, latter two diameters apart and a little further from the eyes; antennae rather short and hairy; third joint not quite as long as fourth, second plus third about equal to vertex width; pronotum rather long, hind

border arcuate; propodeum moderately arched, strongly transversely wrinkled, and with a median line, with some erect hair on sides. Abdomen rather long, fusiform, petiole moderately short, apex and venter hairy; legs rather short and stout, mid and hind tibiae with few very short spines; long spur of hind tibia fully one-half of basitarsus. Forewings with marginal cell about two-thirds its length from wing-tip; second submarginal not quite twice as long as broad, base curved, receiving the first recurrent vein at middle; third submarginal scarcely longer than second below, fully one-third narrowed above, receiving the second recurrent (slightly curved) a little beyond the basal third; third abscissa of radius much shorter than the second, latter subequal to the fourth; in hind wings the anal is interstitial with cubital fork. Length 12.5 to 15 mm.

From Singapore. Differs from *D. apollo* in lack of yellow on thoracic notum, in having more joints of antennae black, etc. What may be the male is more slender, body black, very hairy all over, but without golden pubescence; the legs (except coxae) yellowish, but hind femora and tips of tibiae dark; antennae black, except the pale yellowish basal joints; wings yellowish, but not as clear as female, the venation the same. Length 12 mm. From Singapore.

#### PHANAGENIA.

1. Hind femora black; forewings with dark stigmal band.....*banoensis*
2. Forewings plainly banded with dark.....*bipennis*
3. With silvery pile; propodeum plainly striate wholly across.....*tincta*  
 With dull pale golden pile; propodeum scarcely striate, and these not  
 complete to down on the sides.....*hippolyte*

#### *Phanagenia banoensis* Rohwer.

One from Singapore, and like the Philippine specimens.

#### *Phanagenia tincta* Sm.

Many from Singapore, and one from the Island of Penang. The face is plainly narrowed above; a line from antennae to anterior ocellus; ocelli in a nearly equilateral triangle, the anterior ocellus rather larger, the posteriors nearer to each other than to the eyes; the third joint of antennae much longer than the fourth and equal to vertex width; propodeum with distinct striae reaching down on the sides to the suture. In the forewings the second submarginal cell is about twice as long as broad, the base curved, receiving the first recurrent beyond the middle; the third submarginal cell longer than the second, narrowed about one-third above, and receiving the second recurrent vein (bent below middle) at basal third; long spine of the hind tibia not one-half of the basitarsus.

**Phanagenia hippolyte** Sm.

Three from Singapore and Island of Penang. The dull, pale golden pile on face and propodeum behind is also on the lower mesopleura, on sides of the mesonotum, and on the pronotum, usually with two spots on upper surface behind as well as on sides and front. The face is a little narrowed above, there is no distinct line from antennae to the anterior ocellus; the ocelli rather large, the posteriors scarcely more than diameter apart and a little farther from the eyes, third joint of antennae much longer than the fourth and longer than vertex width; the propodeum is scarcely striate, and no sign of striae down on sides toward the suture. In the forewing the second submarginal cell is twice as long as broad, base oblique, receiving the first recurrent near middle; the third submarginal cell is much longer than the second, narrowed one-third above, and receiving the second recurrent (bent at middle) at basal third; the long spur of hind tibia is one-half of the basitarsus.

**Phanagenia bipennis** Sauss.

Many of both sexes from Singapore, and a few from Island of Penang; the female of this agrees fairly well with *hypsipyle*. Clypeus rounded below, almost in a point; face but little narrowed above; faint line from antennae to anterior ocellus; posterior ocelli almost twice as near to each other as to eyes; third joint of antennae longer than fourth, second plus third hardly equal to vertex width; pronotum almost angulate behind; propodeum densely, finely striate, complete to the suture, hairy above; long spur of hind tibia not one-half of basitarsus; mid and hind tibiae with very distinct spines in rows (longer than in many species). In forewing the second submarginal cell fully twice as long as broad, narrowed nearly one-third above, receiving the first recurrent near middle; third submarginal longer and much wider behind than the second; narrowed scarcely one-third above, receiving the second recurrent before end of basal third; transverse nervure well beyond the basal vein; in hind wing the anal ends a trifle before the cubital fork. Male has the venation as in female, basal abdominal segment very slender; clypeus truncate below, long spur of hind tibia nearly two-thirds of basitarsus; the white each side on inner orbit runs across ends of clypeus, and on tips of mandibles; under side of basal joint of antennae pale.

**PSEUDAGENIA.**

1. Clypeus pale.....	2
Clypeus black.....	3
2. Pronotum largely pale, also tegulae and base of antennae.....	<i>flavopicta</i>
Pronotum and antennae wholly black.....	<i>bimaculata</i>
3. Hind femora reddish (sometimes others also) wings rarely banded.....	4
Hind femora black or brown.....	9
4. Body very distinctly more or less metallic blue; propodeum trans-	
versely striate.....	<i>blanda</i>
Body not distinctly bluish.....	5
5. Mandible wholly black.....	6
Mandibles largely white.....	7

6. Smaller; clypeus in small point below; face broader; wings scarcely infuscate; anal in hind wings plainly before cubital fork.....*malayana*  
Larger; clypeus rounded below, hardly a point; face more narrow; forewings more or less infumate; in hind wings the anal is interstitial with the cubital fork.....*moesta*
7. Front femora, at least, dark; clypeus somewhat pointed below.....  
*tagalensis*  
Front legs yellowish or yellow-brown, as also middle and hind pairs..... 8
8. Clypeus truncate or a little emarginate in middle below.....*honesta*  
Clypeus rounded or almost pointed in the middle below.....*agitata*
9. Clypeus distinctly emarginate in middle below; forewings with cloud near stigma.....*nitidiventris*  
Clypeus not emarginate, but almost pointed in middle below.....10
10. Body plainly somewhat bluish; forewings without distinct cloud; propodeum rugoso-striate.....*calosoma*  
Body not bluish; forewings with dark bands or clouds.....11
11. Band over basal vein and broader one back of the stigma; propodeum nearly flat.....*morota*  
Narrow band only back of the stigma; propodeum high and sloping....  
*celaeno*

***Pseudagenia blanda* Guerin.**

Many from Singapore; the male appears to agree with *P. albolabris* Bingh.

***Pseudagenia bimaculata* Sm.**

A few from Singapore.

***Pseudagenia tagalensis*, Bks.**

A few from Singapore, like the Philippine form.

***Pseudagenia morota*, Bks.**

All from Singapore, and does not seem to differ from the Philippine type.

***Pseudagenia nitidiventris* Sm.**

From Singapore, also from the Philippines and Celebes.

***Pseudagenia calosoma*, sp. nov.**

Body blue to blue-black, legs and antennae brown to black, wings clear, unmarked, stigma brown. Some whitish pubescence on lower face and clypeus and on lower mesopleura and tip of propodeum and coxae, but not at all prominent. A few short hairs on front and pronotum, longer ones on the propodeum and pleura, tip, and venter of abdomen. Clypeus wedge-shaped, coming to a rounded point in middle below; face a little narrowed above; a line from antennae goes only a short distance; ocelli moderately large, anterior scarcely more than

diameter from posteriors, these hardly two diameters apart, but farther from the eyes; third joint of antennae much longer than the fourth, second plus third fully equal to vertex width; pronotum only slightly and somewhat angularly emarginate behind; propodeum rather densely transversely rugoso-carinate, median line distinct on base; abdomen with a short pedicel, pygidium polished, elongate, scarcely broader behind; mid and hind tibiae with scarcely a trace of spines, long spur of hind tibia about one-half of basitarsus. In forewings marginal cell fully one-half its length from wing-tip; second submarginal cell twice as long as broad, base slightly oblique, receiving the first recurrent just before middle; third submarginal cell much longer and wider behind than the second, narrowed one-fourth above, receiving the second recurrent (much curved) near basal fifth; in hind wings the anal ends plainly before the cubital fork; in forewings the transverse only a trifle beyond the basal vein. Length 7 mm. From Singapore and Island of Penang.

#### *Pseudagenia moesta*, sp. nov.

Black, hind femora reddish, forewings slightly infumate; lower face and clypeus with silvery pubescence, also on much of pronotum, pleura, coxae, and sides of the propodeum, less distinctly on sides of the abdomen; palpi dark. Rather short erect white hair on front, vertex and pronotum, much longer on the propodeum and pleura, short on basal segment of abdomen above, and longer on tip and venter.

Clypeus short, rather broadly rounded below, hardly pointed below; face broad, but plainly narrowed above; a faint line from antennae to anterior ocellus, ocelli in a low triangle, subequal, posteriors a little nearer to each other than to eyes; third joint of antennae but little longer than the fourth, second plus third scarcely equal to vertex width; pronotum only slightly but almost angularly emarginate behind; propodeum evenly rounded, with a very distinct median furrow, heavily punctured, in some lights traces of transverse striae; mesopleura also much punctured; abdomen with a distinct pedicel; mid tibiae with many small but distinct spines above, hind tibiae have no noticeable spines; long spur of hind tibia fully one-half of basitarsus. Forewings with marginal cell more than one-half its length from wing-tip; the second submarginal cell about twice as long as broad, base curved, receiving the first recurrent at middle; third submarginal much longer and broader behind than second, narrowed about one-third above, receiving the second recurrent (scarcely curved) a little before the middle; third abscissa of radius longer than the second, which is longer than fourth; in hind wings the anal vein is interstitial with the cubital fork; in forewings the transverse nervure is plainly beyond the basal. Length 9 to 11 mm. Forewings 8 to 10 mm. From Singapore.

#### *Pseudagenia honesta* Sm.

From Singapore and Island of Penang. The body black with some silvery pubescence; palpi and mandibles white; lower margin of clypeus yellowish; antennae brown, first joint ferruginous beneath; hind margin of pronotum and the tips of abdominal segments alutaceous; legs (including coxae) yellowish; wings hyaline, stigma dark; body not especially hairy.

Clypeus truncate in middle below, with somewhat of a hump each side, so



the middle is almost emarginate; ocelli subequal, posteriors much closer to each other than to the eyes; third joint of antennae long and slender, much longer than the fourth, of itself about equal to vertex width; pronotum short, faintly angulate behind; propodeum sloping, hairy, above, with a median furrow, not striate, but punctate behind; abdomen rather slender with a short pedicel, apex with some long and many short hairs, basal segment short-haired above, venter with rather short hairs; mid and hind tibiae with many distinct, but short spines, some above in rows; long spur of hind tibia more than one-half of basitarsus. Forewings with marginal cell broad, hardly one-half of length from wing-tip, second submarginal cell nearly twice as long as broad, base curved, receiving the first recurrent vein near the middle; third submarginal cell no longer than the second, and somewhat narrowed above, receiving the second recurrent (bent in middle) near basal fourth; third abscissa of radius about equal to second, which is subequal to fourth; in hind-wings the anal ends much before the cubital fork. Length 8 mm. Forewing 8 mm.

In the specimen from Island of Penang there is a dark stigmal cloud in the forewing. I am inclined to identify this with the *Agenia honesta* Smith from Macassar; however, it is not particularly hairy. There is no need of a change of name as the *Pompilus honestus* Sm., which Bingham puts in *Pseudagenia*, is now considered to be a *Macromeris*.

#### *Pseudagenia flavopicta* Sm.

One from Singapore. Clypeus broad, rounded below; face narrowed above, widest at middle; line from antennae to anterior ocellus; ocelli rather large, posteriors about as near eyes as to each other; antennae slender, third joint longer than fourth, second plus third equal vertex width; pronotum broadly but not deeply concave behind, with a median impression; propodeum sloping, not striate, hairy above, with a median furrow; mid and hind tibiae practically without spines; long spur of hind tibia more than one-half of basitarsus. In forewings the first recurrent vein beyond middle; third submarginal cell much longer below than the second, narrowed more than one-third above, receiving the second recurrent near basal third; transverse nervure much beyond the basal vein; in hind wings the anal ends much before the cubital fork.

#### *Pseudagenia*, sp.

Many males from Singapore are almost wholly yellow, with black on vertex and mesonotum, and on some segments of abdomen, brownish antennae and hind legs. They might be males of *Pseudagenia flavopicta*, but probably another species.

#### *Pseudagenia celaeno* Sm.

One from Singapore. Clypeus rounded below, point but little developed; face plainly narrowed above; a line from antennae to anterior ocellus; ocelli rather large, posteriors much nearer to each other than to eyes; third joint of antennae longer than fourth, second plus third not quite equal to vertex width; pronotum but little concave behind; propodeum very finely striate, with a median line; long spur of hind tibia fully one-half of basitarsus; hind tibia with

only very minute spines in rows. In forewing the second submarginal not twice as long as broad, base curved, receiving the first recurrent vein near middle; third submarginal plainly longer than second, narrowed about one-fourth above, receiving the second recurrent vein before end of the basal fourth, in fact very near the base of the cell; transverse nervure about interstitial with basal.

**Pseudagenia malayana** Cam.

Several from Singapore. Clypeus strongly convex, rounded below; a line from antennae to anterior ocellus; posterior ocelli very much closer to each other than to the eyes; third joint of antennae but little longer than the fourth, second plus third not equal to vertex-width; pronotum but little concave behind; propodeum finely striate, and with a median line; long spur of the hind tibia more than one-half of basitarsus; in forewing the second submarginal cell is about twice as long as broad, narrowed about one-third above, receiving the first recurrent vein near the middle; third submarginal cell a little longer than the second, also about one-third narrowed above, and receiving the second recurrent vein before end of the basal third; transverse nervure well beyond the basal vein.

**Pseudagenia agitata** Sm.

Several specimens from Singapore and Island of Penang, agree with Smith's description of color, and in comparison with *P. honesta*; the face and clypeus is more silvery than in *P. honesta*, the coxae are black, and the second submarginal is much shorter than the third, the second recurrent ends near basal third. The clypeus is wedge-shaped, pointed below in middle; the ocelli in a low triangle, the posteriors a little nearer to each other than to the eyes; the third joint of antennae a little longer than fourth, second plus third not equal to vertex width; the pronotum slightly arcuate behind; the propodeum with median furrow, very hairy above, without distinct striae, but much punctate, mostly behind; the mid and hind tibiae with very short and weak spines; the long spur of the hind tibia fully one-half of basitarsus. Some specimens show a little blue or greenish on mesonotum.

**Lophagenia erigone** Bingh.

One from Singapore. Also occurs in the Philippines.

CONAGENIA.

- 1. Thorax reddish.....*aegina*
- Thorax black.....2
- 2. Third submarginal cell nearly twice as long as broad; tips of wing white; larger species.....*nasuta*
- Third submarginal not near so long; tips of wings clouded; smaller species.....*williamsi*

**Conagenia williamsi** Rohwer.

Several from Singapore agree with those from Philippines.

**Conagenia nasuta** Sm.

Many from Singapore; larger than *C. smithi* of the Philippines, but very similar.

**Conagenia aegina** Sm.

Many from Singapore, and one from the Island of Penang; it is the species which Bingham identifies as *P. aegina*, but possibly wrongly.

## MERAGENIA.

- |   |                     |   |
|---|---------------------|---|
| 1. Thorax reddish.....  | undescribed species |   |
| Thorax black as head.....   |                     | 2 |
| 2. Abdomen reddish, forewings almost wholly dark .....  | <i>semirufa</i>     |   |
| Abdomen black; wings mostly clear or only a little infuscate.....   |                     | 3 |
| 3. Pronotum and rest of thorax quite hairy, with a silvery sheen; ocelli large, posteriors hardly more than diameter apart; larger species..... | <i>stulta</i>       |   |
| Pronotum and rest of thorax scarcely at all hairy; ocelli smaller, posteriors one and a half to two diameters apart; smaller species.....       | <i>imitator</i>     |   |

**Meragenia imitator** Ashm.

Numerous specimens from Singapore, agree with those from the Philippines.

**Meragenia stulta** Bingham.

Common at Singapore.

Clypeus broad, almost truncate below, the apical middle with a polished area; face widest at clypeus, much narrowed above; no line to anterior ocellus; ocelli rather large, anterior hardly its diameter from the posterior, latter nearer to each other than to the eyes; antennae short, third joint longer than fourth, second plus third hardly equal vertex width; pronotum behind only a little concave, and with a median impression; mid and hind tibiae with only minute spines; long spur of hind tibia one-half of basitarsus. In the forewings the second submarginal cell is more than twice as broad, base oblique, receiving the first recurrent near middle; third submarginal longer below than second, narrowed one-third above, and receiving the second recurrent near basal third; transverse nervure much beyond the basal vein; in hind wings the anal ends before the cubital fork. The male is similar in color, venation, and sculpture of thorax and propodeum; the pronotum is not square in front, but rounded; the body is very hairy, the slender abdomen has the first segment mostly pedicel; face not as much narrowed above as in female, antennae fully as long as in female, subcrenulate, third joint no longer than fourth; posterior ocelli twice as far from eyes as from each other; long spur of hind tibia almost two-thirds of basitarsus.

**Meragenia semirufa**, sp. nov.

Black, abdomen reddish, sometimes tip darker, wings of both pairs fumose, the first pair darker, and the dark extending to the base; antennae brown; legs brown, the mid and hind coxae and femora rufous; palpi brown. Body with white pubescence, most observable on lower face and clypeus, but usually patches on pronotum, much of pleura, propodeum, and coxae, and even on the sides of the abdomen. Short erect hairs on head and pronotum, longer (but

still rather short) on propodeum and pleura, tip and venter of abdomen; with some very short hair on most of the dorsal segments.

Clypeus distinctly a little concave below; labrum emarginate in middle; face narrowed above, line above antennae goes only a short distance; ocelli large, close together, anterior not near its diameter from posteriors, latter hardly one diameter apart, more than twice as far from the eyes; antennae very short and thick, fourth joint not three times as long as broad, third plainly a little longer, second plus third about equal vertex width; the pronotum very slightly and almost angularly emarginate behind, posterior margin with a median line; mesonotum with the median strip very finely punctate, much coarser on rest of mesonotum; the propodeum rounded, transversely rugoso-striate and granulate, no median line; abdomen elongate, slender, apical part somewhat compressed, short pedicel; mid and hind tibiae with scarcely visible spines; long spur of hind tibia one-half of basitarsus. Forewings with marginal cell long and slender, hardly one-half its width from wing-tip; second submarginal cell twice as long as broad, base curved, receiving the first recurrent at middle; third submarginal very much longer and larger behind than second, about one-fourth narrowed above, receiving the second recurrent (moderately curved) about two-fifths from base; third abscissa of radius very much longer than second, which in turn is much longer than fourth, latter only a little longer than first; in hind wings anal ends plainly before cubital fork; in forewings transverse is one-third to one-fourth beyond basal.

Length 11 mm., forewing 9 mm. From Singapore.

What I presume is the male, is much more slender with a very hairy body even on the abdomen, as well as on all the femora; the body is black, except that the base of abdomen is more or less rufous; basal antennae joint sometimes rather pale; mid and hind coxae and femora rufous; the forewing very dark as in the female, but the extreme base is usually hyaline for a short distance; the hind wing less dark. The venation is the same; the antennae about as long, but less curled than in female, the fourth joint about two and one-half times as long as broad, the third scarcely larger; the long spur of hind tibia is more than one-half the basitarsus, and the spines on mid and hind tibia rather more distinct than in female. Length 7 to 9 mm.

#### APINASPINI.

#### *Apinaspis myrmecoides* Bingham.

A number of females from Singapore; this species deserves a new genus which I call *Apinaspis*.

In the forewing the marginal cell is not near its length from tip of wing; there are three submarginal cells; there is no distinct pocket in the base of the second discoidal cell; the transverse nervure is beyond the basal vein. The head is much like *Platyderes*, flattened, the antennae set low, just above the clypeus about at lower edge of eyes, the clypeus very short, fully four times as broad as long, hardly one-half as long as the first joint of the antennae, the maxillary palpi slender, the joints elongate. Legs almost devoid of spines, only extremely minute ones on the mid and hind tibiae and tarsi; the last tarsal joint has on the under side, one or two small spines in middle, none laterally; the claws have a large tooth near tip, set at almost a right angle to tip of claw; spines at tips of

tibiae extremely minute, practically absent; no spines at tips of femora. The pronotum is elongate, each upper edge almost a ridge; the abdomen is somewhat compressed on the apical part, the second ventral segment without a groove.

In this species the basal joint of the front tarsi is longer than the next three together; the front femora plainly swollen.

PSAMMOCHARINAE.

***Episyron leucophoeus* Sm.**

The male agrees with Smith's description of the color (two spots on the clypeus; the female has a pale line along the lower border of clypeus not reaching either end). In general it is similar to other species of the genus, the second submarginal is very much narrowed above so that its top is but little longer than the top of the third, the latter below is much shorter than the second. In the female the long spur of the hind tibia is about three-fourths of the basitarsus, in the male almost equal to basitarsus; the spines are black.

Several specimens from Singapore.

***Episyron vagabundus* Sm.**

This differs not only in having most of the hind tibia reddish, but in that the spines on mid and hind legs are pale, or at least not black. The second submarginal cell is longer than usual, and about twice as long as the third, which is very short. In the male the lateral spots on clypeus are not connected below.

Several from Singapore.

***Sericopompilus canifrons* Sm.**

A common species at Singapore, and one from the Island of Penang; common in India.

***Sericopompilus perplexus* Sm. ?**

A few, probably this species, from Singapore.

***Sericopompilus atropis* Sm.**

One female from Singapore.

Clypeus broad, faintly concave below; face narrowed about one-third above, ocelli in a low triangle, the posteriors much nearer to the eyes than to each other; third joint of the antennae much longer than fourth, and equal to vertex width; pronotum angulate behind; propodeum short, evenly rounded with a median line, no striae, and with only extremely short, fine hairs above; long spur of hind tibia equal one-half of basitarsus; front tarsus with rather short comb spines, three on basitarsus, their length apart. In forewing the marginal cell about three-fourths its length from wing tip; second submarginal a little longer than broad, base curved, receiving the first recurrent near tip; third submarginal about as long below as second, greatly narrowed above, so that the third abscissa

of radial sector is not one-third of the second; second recurrent vein received at apical third; basal vein and transverse nervure interstitial; in hind wing the anal ends about at the cubital fork.

**Ferreola bakeri**, sp. nov.

Black with silvery pile, except on tarsi; on the abdomen a broad apical band on first three segments, on fourth only a median spot, and still smaller on the next, first three ventral segments largely silvery.

Vertex rounded, although fairly thin; face much narrowed toward vertex, clypeus broadly rounded, but almost truncate below; antennae short, second and third joints together not longer than the first; ocelli large, posteriors hardly more than diameter from the anterior, and scarcely farther from each other than from the eyes; pronotum moderately long, rounded, angulate behind; propodeum nearly flat on basal part, behind deeply cut out, the sides forming blunt processes.

Abdomen with hairs at tip and on venter. Front legs almost without spines, numerous spines on mid and hind tibiae and tarsi, and on the apical part of these femora above; last joint of hind tarsus smooth below, long spur of the hind tibia only about one-half of the basitarsus, claws cleft.

Forewings with the basal interstitial with the transverse, marginal cell long, about its length from wing-tip; second submarginal cell longer than high, base curved, apex straight; third submarginal shorter than the second, very much narrowed above; first recurrent vein ends beyond the middle of second submarginal, second recurrent vein ends beyond middle of the third submarginal, this vein is sinuous. The male is very similar, but narrower throughout.

Length 12 mm., forewing 10 mm. Length 9 mm.

From Singapore, Malay peninsula.

**Homonotus ariadne** Cam.

One from Singapore, also from Hong Kong.

**Xanthampulex pernix** Bingham.

Three from Singapore; known also from India.

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AN IMPORTANT MULBERRY INSECT.

By CARL HEINRICH.

In a paper published in 1935,<sup>1</sup> Miss K. O. Victoria Lieu described the new species *Paradoxecia pielii* (Lepidoptera: Aegeriidae), discussed briefly its life history, and gave figures of the moth, larva, and pupa. In 1933 she began work on the biology of this insect at Kashing and continued it at Hanchow

<sup>1</sup>Lieu, K. O. Victoria. Study of a New Species of Chinese Mulberry-Borer. Musée Heude, Notes d'Entomologie Chinoise, vol. 2, fasc. 10, pp. 185-208, Dec. 20, 1935.